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ABSTRACT

Educators, concerned with disturbing trends in school failure, are arguing for more learner-centered models of schooling. Such a reform effort requires set principles that emphasize the active and reflective nature of learning and learners; 14 such principles are reported here. The immediate goal of this report is to provide a framework that can aid current educational reform and school redesign efforts. These psychological principles pertain to the learner and the learning process and focus on psychological factors that are primarily internal to, and under the control of, the learner rather than being dependent on conditioned habits or physiological factors. The principles are divided into various factors that influence learning: metacognitive, motivational and affective, developmental and social, and individual differences. The nature of the learning process, the construction of knowledge, the context of learning, the intrinsic motivation to learn, the developmental and social influences on learning, learning and diversity, and standards and assessment are some of the principles defined here. All of the principles can be applied to all learners--from children, to teachers, to administrators, to parents, and to community members involved in the educational system. (RJM)

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ED 411 493

Learner-Centered Psychological Principles: A Framework for School Redesign and Reform

Revision prepared by a Work Group of the American Psychological Association's Board of Educational Affairs (BEA)

December 1995

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FOREWORD AND ACKNOWLEDGEMENTS

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Learner-Centered Psychological Principles

The initial draft of the *Principles* was circulated in March 1991 to a wide range of psychologists, educators, and professionals in various scientific disciplines. Although favorable comments were received from almost everyone who responded with suggestions for revision, a number of reviewers noted that the language was too technical and suggested that the document could be improved by simplifying the presentation to make it more readily accessible for use by teachers and other professionals.

The suggestions for revision were incorporated in the *Principles* by Dr. Barbara L. McCombs, assisted by the Task Force Co-chairs and members, to create a more "user friendly" version, with less technical language for non-psychologists. The current revision of the *Principles* was developed by the Learner-Centered Principles Work Group which was commissioned by the APA Boards of Educational Affairs (BEA) and Scientific Affairs (BSA). Led by Dr. Spielberger, its members included Drs. Lee Ann Clark, Norma D. Feshbach, Walter Kintsch, Nadine M. Lambert, Barbara L. McCombs, Sylvia A. Rosenfield, Mary Tenopyr, and Clair Ellen Weinstein. Colleagues who contributed to this and the earlier revisions are listed in the Appendix.

Although the *Principles* have received extensive review, further comments concerning possible omissions or areas requiring consideration in future revisions of this evolving document are most welcome. In addition, the APA Education Directorate and Science Directorates welcome information about specific applications of the *Principles*, and ways in which they are found to be useful.

In addition to the contributions of the psychologists and educators just noted, we have received comments from individuals and representatives of a wide range of professional groups.

We are grateful for their feedback:

Ronald S. Brandt, Executive Editor, Association for Supervision and Curriculum Development (ASCD);

Bonnie J. Brunkhorst, Retired President, National Science Teachers Association (NSTA);

Rodger W. Bybee, Acting Director, Innovative Science Education, Biological Sciences Curriculum Study (BSCS);

Joan Walsh Cassedy, Executive Secretary, Society of Toxicology;

Pat Cox, Project Director, Regional Laboratory for Educational Improvement (REI) of the Northeast Islands;

Robert E. Fathman, Chairman, National Coalition to Abolish Corporal Punishment in Schools (NCACPS);

Shirley M. Frye, Past President, National Council of Teachers of Mathematics (NCTM);

Gary D. Fullerton, President,American Association of Physicists in Medicine (AAPM);

John A. Gans, Executive Vice President, American Pharmaceutical Association (APhA);

Christopher G.A. Harrison, Chairman, American Geophysical Union, (AGU);

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James D. Hennes, Curriculum and Evaluation, Colorado Department of Education;

Rosalie S. Humphrey, President-Elect, American School Counselor Association);

C. Larry Hutchins, Executive Director, Midcontinent Regional Education Laboratory (McRel), Colorado;

Louis A. Iozzi, Dean, Academic and Student Affairs, Rutgers University;

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Michelle R. LaWarre, President, APhA Academy of Students of Pharmacy, American Pharmaceutical Association (AphA);

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James F. Marran, Co-Chair of the Teaching and Learning Task Force of the National Council of Social Studies (NCSS);

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Patricia J. McWethy, Executive Director, National Association of Biology Teachers (NABT);

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Samuel G. Sava, Executive Director, National Association of Elementary School Principals (NAESP);

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Marilyn M. Smith, Executive Director, National Association for the Education of Young Children (NAEYC);

Philip M. Smith, Executive Officer, National Staff Development Center (NSDC);

Richard W. Traxler, Chair, Education Committee, Society for Industrial Microbiology (SIM);

Carl E. Trinca, Executive Director, American Association of Colleges of Pharmacy (AACP);

Sylvia Ware, Director, Education Division, American Chemical Society (ACS);

Gary D. Watts, Senior Director, National Education Association (NEA), and

Ellen C. Weaver, Chair, education Committee, American Society of Plant Physiologists (ASPP).

Additional comments were received from the following and, after lengthy iscussion and consideration by the Work Group members, appropriate changes were made to the LCP document at the group's December 1995 Meeting: David Berliner, PhD, Allen E. Black, PhD, John Bransford, PhD, Ann L. Brown, PhD, Sandra Christenson, PhD, Lee Anna Clark, PhD, Carolyn Cobb, PhD, Mark L. Davison, PhD, Henry C. Ellis, PhD, James John Gallagher, PhD, Jeffrey Gorrell, PhD, Wayne Holzman, PhD, College Ingraham, PhD, Neal F. Johnson, PhD, Walter Kintsch, PhD, Tom Kratochwill, PhD, Alan M. Lesgold, PhD, Hermine Marshall, PhD, Barbara McCombs, PhD, Harold O'Neil, Jr., PhD, Scott Paris, PhD, Vera Paster, PhD, Lynn Rehm, PhD, Pam Reid, PhD, Sylvia Rosenfield, PhD, Richard Ryan, PhD, Karen Stoiber, PhD, Mary Tenopyr, PhD, Herbert Walber, PhD, Merlin Wittrock, PhD, and Barry Zimmerman, PhD.

We are grateful to the following colleagues, who have contributed significantly to the *Principles* by their comments and suggestions for revisions of earlier drafts: Larry A. Alferink, Harry P. Bahrick, David C. Berliner, Emmanuel M. Berstein, Fran C. Blumber, Barbara L. Bonner, James P. Connell, Eric L. Dlugokinski, Darwin P Hunt, Beau F. Jones, Lewis P. Lipsitt, Hermine H. Marshall, Adah B. Maurer, Diane McGuinness, Roger C. Mills, Clark E. Moustaka, David N. Perkins, Louisa H. Pierson, Donald K. Pumroy, D. Scott Ridley, Jerome D. Stiller, C.E. Walker, Claire E. Weinstein, Joe Sue Whisler, Merlin C. Wittrock, and Philip G. Zimbardo. The task force extends its special thanks to Martin E. Ford, Chair of the Psychological Studies in Education Program at Stanford University, for his significant contribution to the editing of the January 1993 draft and to Scott G. Paris, Professor of Developmental Psychology at the University of Michigan, for developing some of the learner-centered principles of assessment that are included as a part of the final section of this document.

The Learner-Centered Psychological Principles were developed in a collaborative partnership between the American Psychological Association (APA) and the Mid-continent Regional Educational Laboratory (McRel). The initial work on the *Principles* was carried out by the APA Presidential Task Force on Psychology in Education (PsyEd), established in 1990 by the APA Board of Directors and then APA President-elect, Charles D. Spielberger. Drs. Frank Farley, Nadine M. Lambert, and Barbara L. McCombs served with Dr. Spielberger as PsyEd Task Force Co-chairs. The Task Force also included Drs. Henry C. Ellis, James J. Gallagher, Wayne H. Holtzman, Howard M. Knoff, Harold F. O'Neil, Jr., Sylvia A. Rosenfield, and Thomas J. Shuell. Dr. C. Larry Hutchins, Executive Director of McRel, served as principal educational consultant for the Task Force. Dr. Cynthia G. Baum served as the APA staff consultant.

PREAMBLE

The public education system in the United States is judged by many to be a system in crisis. Proposals for reform of education over the past several years, beginning in 1983 with the publication of "A Nation At Risk: The Imperative for Educational Reform" and leading to the 1994 publication of "GOALS 2000: Educate America Act," have focused attention on new designs for our nation's schools. The eight national education goals set forth in GOALS 2000 built on the earlier work in 1990 and 1991 by the President, Congress, and the nation's governors in America 2000.

The work of the APA Presidential Task Force on Psychology in Education began in 1990 during this period of heightened attention on needed reforms in our educational system. The goals of the Task Force were to direct attention on the contributions of psychology to understanding the learner in educational contexts, and to examine ways that a focus on the psychology of learners and learning could contribute to school redesign. The goals of the learner-centered psychological principles contained in this and the earlier January, 1993 and February, 1995 reports provide an important foundation and framework for improving the quality of teaching and learning in America's schools.

The Task Force report centers attention on learners -- rather than on teaching, curriculum and instruction, or on the administrative structure of the school -- as a way to highlight the contributions of psychology to educational processes and programs. In applying the learner-centered principles, it is recognized that both the teacher and the curriculum materials are key components of effective schooling. The learner-centered psychological principles provide an essential framework to be incorporated in new designs for curriculum and instruction, assessment systems for evaluating educational goal attainments, as well as for the systemic redesign of professional development programs and educational system structures. The principles are expected to speak to teachers, instructors, and others involved in designing or implementing instruction. They contribute to understanding effective strategies that can address problems of low levels of academic achievement.

In setting forth these learner-centered principles, it is recognized that additional perspectives have to be considered as educational reform moves forward as the 21st Century approaches.

Background

Throughout its history, psychology has provided vital information for the design of schooling based on theory and research on human learning, development, and motivation. Research in psychology relevant to education has been particularly informative during the past decade. Advances in our understanding of thinking, memory, and cognitive and motivational processes can contribute directly to improvements in teaching, learning, and the whole enterprise of schooling. At the same time, educators concerned with the growing problems of school dropout, low levels of academic achievement, and other indicators of school failure are arguing for more learner-centered models of schooling. Such models attend to the diversity among students, and use this diversity to enrich learning and to produce results within the context of current school reform.

The following principles, which are consistent with more than a century of research on teaching and learning, are widely shared and implicitly recognized in many excellent programs found in today's schools. They also integrate research and practice in various areas of psychology, including developmental, educational, experimental, social, clinical, organizational, community, and school

psychology. In addition, these principles reflect conventional and scientific wisdom. They comprise not only systematically researched and evolving learner-centered principles that can lead to effective schooling but also principles that can lead to positive mental health and productivity of our nation`s children, their teachers, and the systems that serve them.

Learner-centered psychological principles provide a framework for developing and incorporating the components of new designs for schooling. These principles emphasize the active and reflective nature of learning and learners. From this perspective, educational practice will be most likely to improve when the educational system is redesigned with the primary focus on the learner. Psychologists, in collaboration with educators, can help decide how best to apply sound psychological principles in the redesign of America's schools. A new and exciting vision of schooling, and psychology's role in this vision, can then emerge.

Our immediate goal in offering these learner-centered psychological principles is to provide a framework that can contribute to current educational reform and school redesign efforts. Through dialogue with concerned groups of educators, researchers, and policy makers, these learner-centered principles can evolve further to contribute not only to a new design for America's schools, but also to a society committed to lifelong learning, healthy human development, and productivity. In developing these principles, psychology -- together with other disciplines -- can contribute to the betterment of America's schools and the enhancement of the nation's vital human resources.

Learner-centered psychological principles

The following 14 psychological principles pertain to the learner and the learning process [1]. They focus on psychological factors that are primarily internal to and under the control of the learner rather than conditioned habits or physiological factors. However, the principles also attempt to acknowledge external environment or contextual factors that interact with these internal factors.

The principles are intended to deal holistically with learners in the context of real-world learning situations. Thus, they are best understood as an organized set of principles; no principle should be viewed in isolation. The 14 principles are divided into those referring to *cognitive and metacognitive, motivational and affective, developmental and social, and individual difference* factors influencing learners and learning. Finally, the principles are intended to apply to all learners -- from children, to teachers, to administrators, to parents, and to community members involved in our educational system.

COGNITIVE AND METACOGNITIVE FACTORS

1. **Nature of the learning process.** The learning of complex subject matter is most effective when it is an intentional process of constructing meaning from information and experience.

   There are different types of learning processes, for example, habit formation in motor learning; and learning that involves the generation of knowledge, or cognitive skills and learning strategies. Learning in schools emphasizes the use of intentional processes that students can use to construct meaning from information, experiences, and their own thoughts and beliefs. Successful learners are active, goal-directed, self-regulating, and assume personal responsibility for contributing to their own learning. The principles set forth in this document focus on this type of learning.

2. **Goals of the learning process.** The successful learner, over time and with support and instructional guidance, can create meaningful, coherent representations of knowledge.

The strategic nature of learning requires students to be goal directed. To construct useful representations of knowledge and to acquire the thinking and learning strategies necessary for continued learning success across the life span, students must generate and pursue personally relevant goals. Initially, students' short-term goals and learning may be sketchy in an area, but over time their understanding can be refined by filling gaps, resolving inconsistencies, and deepening their understanding of the subject matter so that they can reach longer-term goals. Educators can assist learners in creating meaningful learning goals that are consistent with both personal and educational aspirations and interests.

3. **Construction of knowledge.** The successful learner can link new information with existing knowledge in meaningful ways.

   Knowledge widens and deepens as students continue to build links between new information and experiences and their existing knowledge base. The nature of these links can take a variety of forms, such as adding to, modifying, or reorganizing existing knowledge or skills. How these links are made or develop may vary in different subject areas, and among students with varying talents, interests, and abilities. However, unless new knowledge becomes integrated with the learner's prior knowledge and understanding, this new knowledge remains isolated, cannot be used most effectively in new tasks, and does not transfer readily to new situations. Educators can assist learners in acquiring and integrating knowledge by a number of strategies that have been shown to be effective with learners of varying abilities, such as concept mapping and thematic organization or categorizing.

4. **Strategic thinking.** The successful learner can create and use a repertoire of thinking and reasoning strategies to achieve complex learning goals.

   Successful learners use strategic thinking in their approach to learning, reasoning, problem solving, and concept learning. They understand and can use a variety of strategies to help them reach learning and performance goals, and to apply their knowledge in novel situations. They also continue to expand their repertoire of strategies by reflecting on the methods they use to see which work well for them, by receiving guided instruction and feedback, and by observing or interacting with appropriate models. Learning outcomes can be enhanced if educators assist learners in developing, applying, and assessing their strategic learning skills.

5. **Thinking about thinking.** Higher order strategies for selecting and monitoring mental operations facilitate creative and critical thinking.

   Successful learners can reflect on how they think and learn, set reasonable learning or performance goals, select potentially appropriate learning strategies or methods, and monitor their progress toward these goals. In addition, successful learners know what to do if a problem occurs or if they are not making sufficient or timely progress toward a goal. They can generate alternative methods to reach their goal (or reassess the appropriateness and utility of the goal). Instructional methods that focus on helping learners develop these higher order (metacognitive) strategies can enhance student learning and personal responsibility for learning.

6. **Context of learning.** Learning is influenced by environmental factors, including culture, technology, and instructional practices.

   Learning does not occur in a vacuum. Teachers play a major interactive role with both the learner and the learning environment. Cultural or group influences on students can impact many educationally relevant variables, such as motivation, orientation toward learning, and ways of

thinking. Technologies and instructional practices must be appropriate for learners' level of prior knowledge, cognitive abilities, and their learning and thinking strategies. The classroom environment, particularly the degree to which it is nurturing or not, can also have significant impacts on student learning.

MOTIVATIONAL AND AFFECTIVE FACTORS

7. **Motivational and emotional influences on learning.** What and how much is learned is influenced by the learner's motivation. Motivation to learn, in turn, is influenced by the individual's emotional states, beliefs, interests and goals, and habits of thinking.

   The rich internal world of thoughts, beliefs, goals, and expectations for success or failure can enhance or interfere with the learner's quality of thinking and information processing. Students' beliefs about themselves as learners and the nature of learning have a marked influence on motivation. Motivational and emotional factors also influence both the quality of thinking and information processing as well as an individual's motivation to learn. Positive emotions, such as curiosity, generally enhance motivation and facilitate learning and performance. Mild anxiety can also enhance learning and performance by focusing the learner's attention on a particular task. However, intense negative emotions (e.g., anxiety, panic, rage, insecurity) and related thoughts (e.g., worrying about competence, ruminating about failure, fearing punishment, ridicule, or stigmatizing labels) generally detract from motivation, interfere with learning, and contribute to low performance.

8. **Intrinsic motivation to learn.** The learner's creativity, higher order thinking, and natural curiosity all contribute to motivation to learn. Intrinsic motivation is stimulated by tasks of optimal novelty and difficulty, relevant to personal interests, and providing for personal choice and control.

   Curiosity, flexible and insightful thinking, and creativity are major indicators of the learners' intrinsic motivation to learn, which is in large part a function of meeting basic needs to be competent and to exercise personal control. Intrinsic motivation is facilitated on tasks that learners perceive as interesting and personally relevant and meaningful, appropriate in complexity and difficulty to the learners' abilities, and on which they believe they can succeed. Intrinsic motivation is also facilitated on tasks that are comparable to real-world situations and meet needs for choice and control. Educators can encourage and support learners' natural curiosity and motivation to learn by attending to individual differences in learners' perceptions of optimal novelty and difficulty, relevance, and personal choice and control.

9. **Effects of motivation on effort.** Acquisition of complex knowledge and skills requires extended learner effort and guided practice. Without learners' motivation to learn, the willingness to exert this effort is unlikely without coercion.

   Effort is another major indicator of motivation to learn. The acquisition of complex knowledge and skills demands the investment of considerable learner energy and strategic effort, along with persistence over time. Educators need to be concerned with facilitating motivation by strategies that enhance learner effort and commitment to learning and to achieving high standards of comprehension and understanding. Effective strategies include purposeful learning activities, guided by practices that enhance positive emotions and intrinsic motivation to learn, and methods that increase learners' perceptions that a task is interesting and personally relevant.

DEVELOPMENTAL AND SOCIAL

10. **Developmental influences on learning.** As individuals develop, there are different opportunities and constraints for learning. Learning is most effective when differential development within and across physical, intellectual, emotional, and social domains is taken into account.

    Individuals learn best when material is appropriate to their developmental level and is presented in an enjoyable and interesting way. Because individual development varies across intellectual, social, emotional, and physical domains, achievement in different instructional domains may also vary. Overemphasis on one type of developmental readiness--such as reading readiness, for example--may preclude learners from demonstrating that they are more capable in other areas of performance. The cognitive, emotional, and social development of individual learners and how they interpret life experiences are affected by prior schooling, home, culture, and community factors. Early and continuing parental involvement in schooling, and the quality of language interactions and two-way communications between adults and children can influence these developmental areas. Awareness and understanding of developmental differences among children with and without emotional, physical, or intellectual disabilities, can facilitate the creation of optimal learning contexts.

11. **Social influences on learning.** Learning is influenced by social interactions, interpersonal relations, and communication with others.

    Learning can be enhanced when the learner has an opportunity to interact and to collaborate with others on instructional tasks. Learning settings that allow for social interactions, and that respect diversity, encourage flexible thinking and social competence. In interactive and collaborative instructional contexts, individuals have an opportunity for perspective taking and reflective thinking that may lead to higher levels of cognitive, social, and moral development, as well as self-esteem. Quality personal relationships that provide stability, trust, and caring can increase learners' sense of belonging, self-respect and self-acceptance, and provide a positive climate for learning. Family influences, positive interpersonal support and instruction in self-motivation strategies can offset factors that interfere with optimal learning such as negative beliefs about competence in a particular subject, high levels of test anxiety, negative sex role expectations, and undue pressure to perform well. Positive learning climates can also help to establish the context for healthier levels of thinking, feeling, and behaving. Such contexts help learners feel safe to share ideas, actively participate in the learning process, and create a learning community.

INDIVIDUAL DIFFERENCES

12. **Individual differences in learning.** Learners have different strategies, approaches, and capabilities for learning that are a function of prior experience and heredity.

    Individuals are born with and develop their own capabilities and talents. In addition, through learning and social acculturation, they have acquired their own preferences for how they like to learn and the pace at which they learn. However, these preferences are not always useful in helping learners reach their learning goals. Educators need to help students examine their learning preferences and expand or modify them, if necessary. The interaction between learner differences and curricular and environmental conditions is another key factor affecting learning outcomes. Educators need to be sensitive to individual differences, in general. They also need to attend to learner perceptions of the degree to which these differences are accepted and adapted to by varying instructional methods and materials.

13. **Learning and diversity.** Learning is most effective when differences in learners' linguistic,

cultural, and social backgrounds are taken into account.

The same basic principles of learning, motivation, and effective instruction apply to all learners. However, language, ethnicity, race, beliefs, and socioeconomic status all can influence learning. Careful attention to these factors in the instructional setting enhances the possibilities for designing and implementing appropriate learning environments. When learners perceive that their individual differences in abilities, backgrounds, cultures, and experiences are valued, respected, and accommodated in learning tasks and contexts, levels of motivation and achievement are enhanced.

14. **Standards and assessment.** Setting appropriately high and challenging standards and assessing the learner as well as learning progress -- including diagnostic, process, and outcome assessment -- are integral parts of the learning process.

    Assessment provides important information to both the learner and teacher at all stages of the learning process. Effective learning takes place when learners feel challenged to work towards appropriately high goals; therefore, appraisal of the learner's cognitive strengths and weaknesses, as well as current knowledge and skills, is important for the selection of instructional materials of an optimal degree of difficulty. Ongoing assessment of the learner's understanding of the curricular material can provide valuable feedback to both learners and teachers about progress toward the learning goals. Standardized assessment of learner progress and outcomes assessment provides one type of information about achievement levels both within and across individuals that can inform various types of programmatic decisions. Performance assessments can provide other sources of information about the attainment of learning outcomes. Self-assessments of learning progress can also improve students self appraisal skills and enhance motivation and self-directed learning.

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[1] The development of each principle involved thorough discussions of the research supporting that principle. The multidisclinary research expertise of the Task Force and Work Group members facilitated an examination of each principle from a number of different research perspectives.

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July 20, 1997

Jillian Barr Joncas
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Dear Ms. Joncas:

This letter is written in response to your April 15, 1996 letter in which you requested a copy of the latest version of the Learner-Centered Psychological Principles, when it becomes available.

I am finally able to provide you with such a copy. Please note that the document title has changed [see bold type] from Learner-Centered Psychological Principles: Guidelines for School Redesign and Reform to Learner Centered Psychological Principles: **A Framework** for School Redesign and Reform.

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Yours truly,

Karen A. Thomas

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